REMARKS

Claims 1-100 are pending in the application, with claims 1, 65, and 84 being the independent claims. Claim 84 has been amended to more particularly define the invention. No amendments to the drawings or specification were made with this Amendment.

Examiner has rejected claims 1-5, 7-18, 20, 28-35, 39-42, 47-53, 56-72, 74-89, and 91-100 under 35 U.S.C. 103(a) as being unpatentable over McCorkle US 6,975,665 B1 (McCorkle) in view of Dress, Jr. et al. US 6,606, 350 B2 (Dress).

Examiner has rejected claim 6 under U.S.C. 103(a) as being unpatentable over McCorkle in view of Dress and Steinberg et al. US 5,808,962 (Steinberg).

Examiner has rejected claims 25-27 under 35 U.S.C. 103(a) as being unpatentable over McCorkle, Dress, and McCorkle US 6,937,646 B1 (McCorkle '646).

Applicants respectfully traverse the rejections. McCorkle teaches a timing generator that includes a high frequency clock generation circuit having low phase noise; a low frequency control generation circuit; and a modulation circuit coupled between the high frequency clock generation circuit and the low frequency control generation circuit. The high frequency clock generation circuit generates a plurality of high frequency clock signals. The low frequency control generation circuit generates a plurality of low frequency control signals. The modulation circuit modulates the high frequency clock signals with the low frequency control signals to produce an agile timing signal at a predetermined frequency and phase. The agile timing signal is generated at the predetermined

frequency and phase by adjustments to at least one of frequency of the low frequency control signals, phase of the low frequency control signals, frequency of the high frequency clock signals, and phase of the high frequency clock signals. The agile timing signal is produced by timing generator 108 of McCorkle (Fig. 1a) and controls the timing of the transmitting of UWB Waveforms by transmitter 114. A similar agile timing signal is produced by another timing generator 108 to control the timing of a UWB waveform correlator 106 of receiver 112. Timing generators 108_0 and $108_{1\text{-}N}$ are also shown in Fig. 2 as part of timing generator module 212 of transceiver 200.

Figs. 3 and 8 identify DACs that are sampled by sample-and-hold circuits in order to control the frequency and phase of the agile timing signal. As such, the sampled DAC values of the timing generator module 212 characterize the timing of when UWB waveforms are transmitted by transmitter 114 and when received UWB waveforms are correlated by the receiver 112, where such characterized timing could be described as a timing profile. However, the time profile merely defines the spacing in time of individual transmitted and received UWB waveforms and is not a time profile of a desired waveform. In other words, the sampled DAC values characterize relative timing of multiple UWB waveforms and do not in any way characterize a time profile of a desired waveform, much less a time profile used to scale the energy of a plurality of RF waveforms in order to emulate a desired waveform. Instead, for any one of the embodiments described by McCorkle, each of the plurality of UWB waveforms generated constitutes a desired waveform whether it be a Gaussian waveform, chirp signal, exponentially weighted sinusoidal function, etc. where each of the desired output waveforms is modulated to convey information. In contrast, Applicants' invention

scales the energy of each of a plurality of generated RF waveforms in accordance with a corresponding one of a plurality of samples of a time profile of a desired waveform (also referred to as a prototype signal) in order to emulate the desired waveform (prototype signal). Overall, McCorkle does not in any way teach or suggest emulating a waveform or teach or suggest a prototype signal which are limitations included in the independent claims.

Dress discloses an approach to UWB signal transmission and reception that is entirely different from McCorkle and entirely unrelated to the Applicants' invention. Dress essentially combines a plurality of UWB waveforms into a composite waveform, where each of the plurality of UWB waveforms corresponds to a different n^{th} order derivative of a Gaussian pulse. Because such derivative waveforms are orthogonal they do not interfere with each other and each waveform can be modulated independently in order to convey a different bit of information. As such, Dress does not in any way relate to emulating a desired waveform, involve a time profile of a desired waveform, or scaling energy of a plurality of RF waveforms in accordance with a corresponding one of a plurality of sample values of a time profile of desired waveform (prototype signal) in order to emulate the desired waveform (prototype signal). Overall, Dress does not in any way teach or suggest emulating a waveform or teach or suggest a prototype signal, which are limitations included in the independent claims.

Steinberg and McCorkle '646 also do not in way relate to emulating a desired waveform, involve a time profile of a desired waveform, or scaling energy of a plurality of RF waveforms in accordance with a corresponding one of a plurality of sample values of a time profile of desired

waveform (prototype signal) in order to emulate the desired waveform (prototype signal). Overall, Steinberg and McCorkle '646 do not in any way teach or suggest emulating a waveform or teach or suggest a prototype signal, which are limitations included in the independent claims.

Essentially, the Examiner states that all pending Claims of the application are obvious based on the combined teachings of McCorkle, Dress, Steinberg, and McCorkle '646, where McCorkle teaches a low power, high resolution timing generator for UWB communications systems, Dress teaches a pulse transmission receiver with higher-order time derivative pulse generator, Steinberg teaches ultrasparse, ultrawideband arrays, and McCorkle '636 teaches a leakage nulling receiver correlator structure and method for ultra wide bandwidth communication system. The Examiner argues that it would have been obvious to one of ordinary skill in the art to utilize the plurality of waveforms of Dress in McCorkle's UWB transmitter or transceiver. The Examiner also argues that it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Steinberg in the system of McCorkle by having the amplitudes comprise RMS amplitude for the purpose of properly evaluating the sidelobe levels. The Examiner then argues that it would have been obvious to one of ordinary skill in the art to incorporate the teaching of McCorkle '646 in the system of McCorkle for the purpose of time-aligning with signal RF.

As you may know, the US Supreme Court recently issued an opinion on obviousness based on combination of references, some of the main points of which are as follows. According to the Court, a combination of claimed elements must do more than yield a predictable result. The Court stated that a suggestion, teaching, or motivation to combine the relevant prior art does not have to be

found explicitly in the prior art. Rather, in considering motivation in the obviousness analysis, the general problem confronting the inventor should be examined, not the specific problem solved by the invention. The obviousness test now requires considering whether a person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, and motivated by the general problem facing the inventor, would have been led to make the combination recited in the claims. The Court made clear, however, that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.

In our view, the best way for overcoming the obviousness rejection cited in the instant application is to demonstrate that the combination of McCorkle, Dress, Steinberg, and McCorkle '646 does not teach or suggest each and every one of the claimed limitations, including those introduced in any claim amendments made in the response to the Office action, if any. Also, we could argue that the prior art either teaches away from the claimed invention and/or that the combination of McCorkle, Dress, Steinberg, and McCorkle '646 would not provide a person of ordinary skill any reason to attempt to carry out the claimed invention and that there would be no reasonable expectation of success in attempting to do so.

Overall, no combination of McCorkle, Dress, Steinberg, and/or McCorkle '646 results in the claimed method of emulating a desired waveform, the claimed method for generating waveforms, or the claimed waveform generator of the Applicants' invention as claimed in independent claims 1, 65, and 84. As such, Applicants content that the rejections of these claims have been properly traversed.

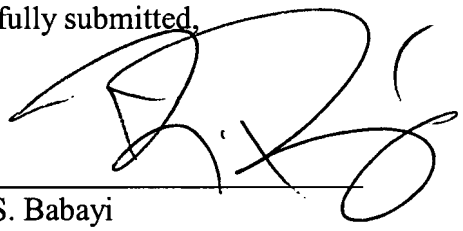
Moreover, the rejections of the claims dependent on claims 1, 65, and 84 have been properly traversed for at least the same reasons as for the claims upon which they are independent.

Applicants wish to thank Examiner for the indication of allowability of claims 19, 21-24, 36-38, 43-46, 54, 55, 73, and 90 if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is hereby invited to telephone the undersigned at the number provided.

A Notice of Allowance with claims 1-100 is respectfully requested.

Respectfully submitted,



Date: September 20, 2007

Robert S. Babayi
Registration No. 33,471
VENABLE
P.O. Box 34385
Washington, D.C. 20043-9998
Telephone: (202) 344-4000
Telefax: (202) 344-8300